



UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent application of:

Brian E. Lemoff et al.

Serial No.: 09/873,127

Filed: June 1, 2001

For: *Non-Blocking Mechanical Fiber*
Optic Matrix Switch

Examiner: Sung H. Pak

Group Art Unit: 2874

Confirmation: 3243

REPLY BRIEF

Honorable Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

The withdrawal of the obviousness rejection of Claims 20 and 26 - 28 in the Examiner's Answer mailed March 10, 2004 is noted.

The examiner has maintained his obviousness rejection of Claims 1, 2, 4 - 5, 8, 11 - 12 and 16 - 18 over Kobayashi et al. in view of Mock.

Applicants' previous argument that the Grin-rod lenses 26 of Mock transmit light a substantial distance was in reference to the light path between the lenses 26 and the photo-detectors 34. The examiner correctly indicates that the Grin-rod lenses 26 and 29 are in close proximity. However, this requires that the armature 19 be rotated through an arc to align a single movable output fiber 31 with a selected one of a plurality of non-movable input fibers 27 circumferentially arranged on a fixed circular support plate 16. This is a very different switching arrangement than that embodied in the invention of independent Claims 1 and 11 on appeal which require that the end portions of selected N input optical fibers and M output optical fibers be translatable along overlapping paths into alignment.

The examiner contends that Mock teaches the desirability of using collimating lenses in lieu of the Z-axis movement and input/output optical fiber mating used in Kobayashi et al., and therefore such a modification would allegedly have been obvious to one of ordinary skill in the art. The examiner's proposed modification defeats the fundamental design of Kobayashi et al. which depends upon pulley mechanisms 17 and 27 to insert and withdraw ferrules 12 and 22 on the optical fibers of groups 10 and 20, respectively, relative to the sleeves 3 in change connection board 1. More importantly, however, is the fact that in Kobayashi et al. the faces of the selected optical fibers are physically mated, i.e. in contact with one another. See, for example, the reference in the English abstract of Kobayashi et al. to the "butt parts of the ferrules 12, 22." Even the small air gap between the Grin-rod lenses 26 and 29 of Mock (see column 6, line 7) would introduce losses substantially greater than those resulting from direct physical mating of the ends of the optical fibers of groups 10 and 20 in Kobayashi et al. Accordingly, one of ordinary skill in the art of optical switch design would not be motivated to modify Kobayashi et al. in a manner that would *increase* the losses therein, i.e. *degrade* the optical coupling between the input optical fibers and the output optical fibers.

Accordingly, the obviousness rejections of Claims 1, 2, 4 - 5, 8, 11 - 12 and 16 - 18 over Kobayashi et al. in view of Mock should be reversed.

Respectfully submitted,



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